

SEQUENCE LISTING

<110> The University of Texas Health Science Center at San Antonio

<120> REGULATION OF TISSUE MINERALIZATION AND
PHOSPHATE METABOLISM BY ASARM PEPTIDES

<130> 21105.0011P1

<140> Unknown

<141> 2004-09-20

<150> 60/504,044

<151> 2003-09-19

<160> 24

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 19

<212> PRT

<213> Homo sapien

<400> 1

Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser Gly Ser Ser Ser Glu Ser
1 5 10 15
Asp Gly Asp

<210> 2

<211> 18

<212> PRT

<213> Mus musculus

<400> 2

Arg Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser His
1 5 10 15
Gly Asp

<210> 3

<211> 18

<212> PRT

<213> Rattus norvegicus

<400> 3

Arg Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser Ser
1 5 10 15
Gly Asp

<210> 4

<211> 24

<212> PRT

<213> Homo sapien

<400> 4
Phe Ser Ser Arg Arg Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser Gly
1 5 10 15
Ser Ser Ser Glu Ser Asp Gly Asp
20

<210> 5
<211> 25
<212> PRT
<213> Homo sapien

<400> 5
Cys Phe Ser Ser Arg Arg Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser
1 5 10 15
Gly Ser Ser Ser Glu Ser Asp Gly Asp
20 25

<210> 6
<211> 26
<212> PRT
<213> Homo sapien

<400> 6
Cys Gly Ser Gly Tyr Thr Asp Leu Gln Glu Arg Gly Asp Asn Asp Ile
1 5 10 15
Ser Pro Phe Ser Gly Asp Gly Gln Pro Phe
20 25

<210> 7
<211> 5
<212> PRT
<213> Homo sapien

<400> 7
Ala Pro Thr Phe Gln
1 5

<210> 8
<211> 5
<212> PRT
<213> Homo sapien

<400> 8
Asp Ser Glu Ser Ser
1 5

<210> 9
<211> 5
<212> PRT
<213> Homo sapien

<400> 9
Ser Ser Ser Glu Ser
1 5

<210> 10
<211> 15
<212> PRT
<213> Homo sapien

<400> 10

Ala Pro Thr Phe Gln Pro Gln Thr Glu Lys Thr Lys Gln Ser Cys
1 5 10 15

<210> 11

<211> 19

<212> PRT

<213> Homo sapien

<400> 11

Thr Asp Leu Gln Glu Arg Gly Asp Asn Asp Ile Ser Pro Phe Ser Gly
1 5 10 15
Asp Gly Gln

<210> 12

<211> 19

<212> PRT

<213> Homo sapien

<400> 12

Gly Arg Gln Pro His Ser Asn Arg Arg Phe Ser Ser Arg Arg Arg Asp
1 5 10 15
Asp Ser Ser

<210> 13

<211> 18

<212> PRT

<213> Homo sapien

<400> 13

Asp Asp Ser Ser Glu Ser Ser Asp Ser Gly Ser Ser Ser Glu Ser Asp
1 5 10 15
Gly Asp

<210> 14

<211> 19

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 12, 14, 16

<223> Xaa = a phosphorylated serine

<400> 14

Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser Gly Xaa Ser Xaa Glu Xaa
1 5 10 15
Asp Gly Asp

<210> 15

<211> 25

<212> PRT

<213> Homo sapien

<400> 15

Gly	Ser	Gly	Tyr	Thr	Asp	Leu	Gln	Glu	Arg	Gly	Asp	Asn	Asp	Ile	Ser
1				5					10					15	
Pro	Phe	Ser	Gly	Asp	Gly	Gln	Pro	Phe							
			20					25							

<210> 16

<211> 19

<212> PRT

<213> Macaca fascicularis

<400> 16

Arg	Glu	Asp	Ser	Ser	Glu	Ser	Ser	Asp	Ser	Gly	Ser	Ser	Ser	Glu	Ser
1				5					10					15	
Asp	Gly	Asp													

<210> 17

<211> 525

<212> PRT

<213> Homo sapien

<400> 17

Met	Arg	Val	Phe	Cys	Val	Gly	Leu	Leu	Leu	Phe	Ser	Val	Thr	Trp	Ala
1				5					10					15	
Ala	Pro	Thr	Phe	Gln	Pro	Gln	Thr	Glu	Lys	Thr	Lys	Gln	Ser	Cys	Val
			20					25				30			
Glu	Glu	Gln	Arg	Gln	Glu	Glu	Lys	Asn	Lys	Asp	Asn	Ile	Gly	Phe	His
		35					40					45			
His	Leu	Gly	Lys	Arg	Ile	Asn	Gln	Glu	Leu	Ser	Ser	Lys	Glu	Asn	Ile
	50				55					60					
Val	Gln	Glu	Arg	Lys	Lys	Asp	Leu	Ser	Leu	Ser	Glu	Ala	Ser	Glu	Asn
65				70					75					80	
Lys	Gly	Ser	Ser	Lys	Ser	Gln	Asn	Tyr	Phe	Thr	Asn	Arg	Gln	Arg	Leu
			85					90					95		
Asn	Lys	Glu	Tyr	Ser	Ile	Ser	Asn	Lys	Glu	Asn	Thr	His	Asn	Gly	Leu
			100				105					110			
Arg	Met	Ser	Ile	Tyr	Pro	Lys	Ser	Thr	Gly	Asn	Lys	Gly	Phe	Glu	Asp
		115				120						125			
Gly	Asp	Asp	Ala	Ile	Ser	Lys	Leu	His	Asp	Gln	Glu	Glu	Tyr	Gly	Ala
	130					135					140				
Ala	Leu	Ile	Arg	Asn	Asn	Met	Gln	His	Ile	Met	Gly	Pro	Val	Thr	Ala
145				150					155						160
Ile	Lys	Leu	Leu	Gly	Glu	Glu	Asn	Lys	Glu	Asn	Thr	Pro	Arg	Asn	Val
			165					170						175	
Leu	Asn	Ile	Ile	Pro	Ala	Ser	Met	Asn	Tyr	Ala	Lys	Ala	His	Ser	Lys
			180				185						190		
Asp	Lys	Lys	Lys	Pro	Gln	Arg	Asp	Ser	Gln	Ala	Gln	Lys	Ser	Pro	Val
	195					200						205			
Lys	Ser	Lys	Ser	Thr	His	Arg	Ile	Gln	His	Asn	Ile	Asp	Tyr	Leu	Lys
	210					215					220				
His	Leu	Ser	Lys	Val	Lys	Lys	Ile	Pro	Ser	Asp	Phe	Glu	Gly	Ser	Gly
225				230					235						240
Tyr	Thr	Asp	Leu	Gln	Glu	Arg	Gly	Asp	Asn	Asp	Ile	Ser	Pro	Phe	Ser
			245					250						255	
Gly	Asp	Gly	Gln	Pro	Phe	Lys	Asp	Ile	Pro	Gly	Lys	Gly	Glu	Ala	Thr
		260					265						270		
Gly	Pro	Asp	Leu	Glu	Gly	Lys	Asp	Ile	Gln	Thr	Gly	Phe	Ala	Gly	Pro
	275					280						285			
Ser	Glu	Ala	Glu	Ser	Thr	His	Leu	Asp	Thr	Lys	Lys	Pro	Gly	Tyr	Asn
	290					295					300				

Glu Ile Pro Glu Arg Glu Glu Asn Gly Gly Asn Thr Ile Gly Thr Arg
 305 310 315 320
 Asp Glu Thr Ala Lys Glu Ala Asp Ala Val Asp Val Ser Leu Val Glu
 325 330 335
 Gly Ser Asn Asp Ile Met Gly Ser Thr Asn Phe Lys Glu Leu Pro Gly
 340 345 350
 Arg Glu Gly Asn Arg Val Asp Ala Gly Ser Gln Asn Ala His Gln Gly
 355 360 365
 Lys Val Glu Phe His Tyr Pro Pro Ala Pro Ser Lys Glu Lys Arg Lys
 370 375 380
 Glu Gly Ser Ser Asp Ala Ala Glu Ser Thr Asn Tyr Asn Glu Ile Pro
 385 390 395 400
 Lys Asn Gly Lys Gly Ser Thr Arg Lys Gly Val Asp His Ser Asn Arg
 405 410 415
 Asn Gln Ala Thr Leu Asn Glu Lys Gln Arg Phe Pro Ser Lys Gly Lys
 420 425 430
 Ser Gln Gly Leu Pro Ile Pro Ser Arg Gly Leu Asp Asn Glu Ile Lys
 435 440 445
 Asn Glu Met Asp Ser Phe Asn Gly Pro Ser His Glu Asn Ile Ile Thr
 450 455 460
 His Gly Arg Lys Tyr His Tyr Val Pro His Arg Gln Asn Asn Ser Thr
 465 470 475 480
 Arg Asn Lys Gly Met Pro Gln Gly Lys Gly Ser Trp Gly Arg Gln Pro
 485 490 495
 His Ser Asn Arg Arg Phe Ser Ser Arg Arg Arg Asp Asp Ser Ser Glu
 500 505 510
 Ser Ser Asp Ser Gly Ser Ser Ser Glu Ser Asp Gly Asp
 515 520 525

<210> 18

<211> 433

<212> PRT

<213> Mus musculus

<400> 18

Met Gln Ala Val Ser Val Gly Leu Leu Leu Phe Ser Met Thr Trp Ala
 1 5 10 15
 Ala Pro Met Pro Asn Glu Asp Arg Ser Ser Cys Gly Asn Gln Asp Ser
 20 25 30
 Ile His Lys Asp Leu Ala Ala Ser Val Tyr Pro Asp Pro Thr Val Asp
 35 40 45
 Glu Gly Thr Glu Asp Gly Gln Gly Ala Leu Leu His Pro Pro Gly Gln
 50 55 60
 Asp Arg Tyr Gly Ala Ala Leu Leu Arg Asn Ile Thr Gln Pro Val Lys
 65 70 75 80
 Ser Leu Val Thr Gly Ala Glu Leu Arg Arg Glu Gly Asn Gln Glu Lys
 85 90 95
 Arg Pro Gln Ser Val Leu Ser Val Ile Pro Ala Asp Val Asn Asp Ala
 100 105 110
 Lys Val Ser Leu Lys Asp Ile Lys Asn Gln Glu Ser Tyr Leu Leu Thr
 115 120 125
 Gln Ser Ser Pro Val Lys Ser Lys His Thr Lys His Thr Arg Gln Thr
 130 135 140
 Arg Arg Ser Thr His Tyr Leu Thr His Leu Pro Gln Ile Lys Lys Thr
 145 150 155 160
 Pro Ser Asp Leu Glu Gly Ser Gly Ser Pro Asp Leu Leu Val Arg Gly
 165 170 175
 Asp Asn Asp Val Pro Pro Phe Ser Gly Asp Gly Gln His Phe Met His
 180 185 190
 Ile Pro Gly Lys Gly Gly Ala Gly Ser Gly Pro Glu Ser Ser Thr Ser
 195 200 205

Arg Pro Leu Ser Gly Ser Ser Lys Ala Glu Val Ile Asp Pro His Met
 210 215 220
 Ser Gly Leu Gly Ser Asn Glu Ile Pro Gly Arg Glu Gly His Gly Gly
 225 230 235 240
 Ser Ala Tyr Ala Thr Arg Asp Lys Ala Ala Gln Gly Ala Gly Ser Ala
 245 250 255
 Gly Gly Ser Leu Val Gly Gly Ser Asn Glu Ile Thr Gly Ser Thr Asn
 260 265 270
 Phe Arg Glu Leu Pro Gly Lys Glu Gly Asn Arg Ile Asn Ala Gly Ser
 275 280 285
 Gln Asn Ala His Gln Gly Lys Val Glu Phe His Tyr Pro Gln Val Ala
 290 295 300
 Ser Arg Glu Lys Val Lys Gly Gly Val Glu His Ala Gly Arg Ala Gly
 305 310 315 320
 Tyr Asn Glu Ile Pro Lys Ser Ser Lys Gly Ser Ser Ser Lys Asp Ala
 325 330 335
 Glu Glu Ser Lys Gly Asn Gln Leu Thr Leu Thr Ala Ser Gln Arg Phe
 340 345 350
 Pro Gly Lys Gly Lys Ser Gln Gly Pro Ala Leu Pro Ser His Ser Leu
 355 360 365
 Ser Asn Glu Val Lys Ser Glu Glu Asn His Tyr Val Phe His Gly Gln
 370 375 380
 Asn Asn Leu Thr Pro Asn Lys Gly Met Ser Gln Arg Arg Gly Ser Trp
 385 390 395 400
 Pro Ser Arg Arg Pro Asn Ser His Arg Arg Ala Ser Thr Arg Gln Arg
 405 410 415
 Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser His Gly
 420 425 430
 Asp

<210> 19

<211> 435

<212> PRT

<213> Rattus norvegicus

<400> 19

Met Gln Ala Val Ser Val Gly Leu Phe Leu Phe Ser Met Thr Trp Ala
 1 5 10 15
 Ala Pro Lys Leu Asn Glu Asp Gly Ser Ser Gly Gly Asn Gln Gly Asn
 20 25 30
 Ile His Leu Ala Ser Val Lys Pro Glu Pro Met Val Gly Lys Gly Thr
 35 40 45
 Glu Gly Gly Arg Asp Ala Pro Leu His Leu Leu Asp Gln Asn Arg Gln
 50 55 60
 Gly Ala Thr Leu Leu Arg Asn Ile Thr Gln Pro Val Lys Ser Leu Val
 65 70 75 80
 Thr Gly Thr Glu Val Gln Ser Asp Arg Asn Lys Glu Lys Lys Pro Gln
 85 90 95
 Ser Val Leu Ser Val Ile Pro Thr Asp Val His Asn Thr Asn Asp Tyr
 100 105 110
 Ser Glu Asp Thr Glu Asn Gln Gln Arg Asp Leu Leu Leu Gln Asn Ser
 115 120 125
 Pro Gly Gln Ser Lys His Thr Pro Arg Ala Arg Arg Ser Thr His Tyr
 130 135 140
 Leu Thr His Leu Pro Gln Ile Arg Lys Ile Leu Ser Asp Phe Glu Asp
 145 150 155 160
 Ser Ala Ser Pro Asp Leu Leu Val Arg Gly Asp Asn Asp Val Pro Pro
 165 170 175
 Phe Ser Gly Asp Gly Gln His Phe Met His Thr Pro Asp Arg Gly Gly
 180 185 190

Ala Val Gly Ser Asp Pro Glu Ser Ser Ala Gly His Pro Val Ser Gly
 195 200 205
 Ser Ser Asn Val Glu Ile Val Asp Pro His Thr Asn Gly Leu Gly Ser
 210 215 220
 Asn Glu Ile Pro Gly Arg Glu Gly His Ile Gly Gly Ala Tyr Ala Thr
 225 230 235 240
 Arg Gly Lys Thr Ala Gln Gly Ala Gly Ser Ala Asp Val Ser Leu Val
 245 250 255
 Glu Gly Ser Asn Glu Ile Thr Gly Ser Thr Lys Phe Arg Glu Leu Pro
 260 265 270
 Gly Lys Glu Gly Asn Arg Val Asp Ala Ser Ser Gln Asn Ala His Gln
 275 280 285
 Gly Lys Val Glu Phe His Tyr Pro Gln Ala Pro Ser Lys Glu Lys Val
 290 295 300
 Lys Gly Gly Ser Arg Glu His Thr Gly Lys Ala Gly Tyr Asn Glu Ile
 305 310 315 320
 Pro Lys Ser Ser Lys Gly Gly Ala Ser Lys Asp Ala Glu Glu Ser Lys
 325 330 335
 Gly Asn Gln Val Thr Leu Thr Glu Ser Gln Arg Phe Pro Gly Lys Gly
 340 345 350
 Lys Gly Gln Ser Ser His Ser Leu Gly Asn Glu Val Lys Ser Glu Glu
 355 360 365
 Asp Ser Ser Asn Ser Leu Ser Arg Glu Gly Ile Ala Ile Ala His Arg
 370 375 380
 Arg Thr Ser His Pro Thr Arg Asn Arg Gly Met Ser Gln Arg Arg Gly
 385 390 395 400
 Ser Trp Ala Ser Arg Arg Pro His Pro His Arg Arg Val Ser Thr Arg
 405 410 415
 Gln Arg Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser
 420 425 430
 Ser Gly Asp
 435

<210> 20

<211> 555

<212> PRT

<213> Macaca fascicularis

<400> 20

Met Arg Val Phe Cys Val Gly Leu Leu Phe Leu Ser Val Thr Trp Ala
 1 5 10 15
 Ala Pro Thr Phe Gln Pro Gln Thr Glu Lys Thr Lys Gln Ser Cys Val
 20 25 30
 Glu Glu Gln Arg Ile Thr Tyr Lys Gly His His Glu Lys His Gly His
 35 40 45
 Tyr Val Phe Lys Cys Val Tyr Met Ser Pro Gly Lys Lys Asn Gln Thr
 50 55 60
 Asp Val Lys Gln Glu Glu Lys Asn Lys Asp Asn Ile Gly Leu His His
 65 70 75 80
 Leu Gly Lys Arg Arg Tyr Gln Glu Leu Ser Ser Lys Glu Asn Ile Val
 85 90 95
 Gln Glu Arg Lys Lys Asp Leu Ser Leu Ser Glu Ala Gly Glu Asn Asn
 100 105 110
 Gly Ser Ser Lys Ser Gln Asn Tyr Phe Thr Asn Arg Gln Arg Leu Asn
 115 120 125
 Lys Glu Tyr Ser Ile Ser Asn Lys Glu Asn Ile His Asn Gly Leu Arg
 130 135 140
 Met Ser Ile Tyr Pro Lys Ser Thr Gly Asn Lys Gln Phe Ala Asp Gly
 145 150 155 160
 Asp Asp Ala Ile Ser Glu Leu His Asp Gln Glu Glu Tyr Gly Ala Ala
 165 170 175

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Leu Ile Arg Asn Asn Met Gln His Ile Met Gly Pro Val Thr Ala Ile
180 185 190
Lys Leu Leu Gly Glu Glu Asn Lys Gln Ser Lys Pro Lys Asn Val Leu
195 200 205
Asn Lys Ile Pro Ala Ser Met Asn Tyr Ala Lys Ala His Ser Lys Asp
210 215 220
Lys Lys Lys Pro Gln Arg Asp Ser Gln Val Gln Lys Val Pro Val Lys
225 230 235 240
Ser Lys Ser Thr His Arg Thr Gln His Asn Ile Asp Tyr Pro Lys His
245 250 255
Leu Ser Lys Val Lys Lys Ile Pro Ser Asp Phe Glu Gly Ser Gly Tyr
260 265 270
Thr Asp Leu Gln Glu Arg Gly Asp Asn Asp Met Ser Pro Phe Ser Gly
275 280 285
Asp Gly Gln Pro Phe Lys Asp Ile Pro Gly Lys Gly Glu Ala Thr Gly
290 295 300
Ser Asp Leu Glu Gly Lys Asp Ile Gln Thr Gly Phe Ala Gly Pro Ser
305 310 315 320
Glu Ala Glu Ser Thr Asn Leu Asp Thr Lys Glu Pro Gly Tyr Asn Glu
325 330 335
Ile Pro Glu Arg Lys Glu Asn Gly Gly Asn Thr Ile Gly Thr Gly Asp
340 345 350
Glu Thr Ala Lys Glu Ala Asp Ala Val Asp Val Ser Leu Val Glu Gly
355 360 365
Asn Asn Asp Ile Met Gly Ser Thr Asn Phe Lys Glu Leu Pro Gly Arg
370 375 380
Glu Gly Asn Arg Val Asp Val Gly Gly Gln Asn Ala His Gln Gly Lys
385 390 395 400
Val Glu Phe His Tyr Pro Pro Ala Pro Ser Lys Glu Lys Arg Lys Glu
405 410 415
Gly Ser Ser Asp Ala Thr Glu Ser Thr Asn Tyr Asn Glu Ile Pro Lys
420 425 430
Asn Asp Lys Gly Ser Ala Arg Lys Gly Val Asp Asp Ser Asn Arg Asn
435 440 445
Gln Ala Ile Leu His Glu Lys Gln Arg Phe Pro Ser Lys Gly Lys Ser
450 455 460
Gln Gly Leu Pro Ile Pro Ser Arg Gly Leu Asp Asn Glu Ile Lys Thr
465 470 475 480
Glu Met Asp Ser Leu Asn Gly Pro Ser Asn Glu Asn Ile Pro His Ser
485 490 495
Arg Lys Tyr His Tyr Val Pro His Arg Gln Asn Asn Pro Thr Arg Asn
500 505 510
Lys Gly Met Pro His Gly Lys Gly Ser Trp Gly Arg Gln Pro Tyr Ser
515 520 525
Asn Arg Arg Leu Ser Ser Arg Arg Arg Glu Asp Ser Ser Glu Ser Ser
530 535 540
Asp Ser Gly Ser Ser Ser Glu Ser Asp Gly Asp
545 550 555

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<210> 21
 <211> 165
 <212> PRT
 <213> Homa sapien

<220>
 <221> VARIANT
 <222> 1
 <223> Xaa = T or M

<221> VARIANT

<222> 2, 3, 4

<223> Xaa = Any amino acid

<221> VARIANT

<222> 6

<223> Xaa = Y or S

<221> VARIANT

<222> 11

<223> Xaa - E or G

<221> VARIANT

<222> 13

<223> Xaa = E or K

<221> VARIANT

<222> 14, 15, 16

<223> Xaa = Any amino acid

<221> VARIANT

<222> (17)...(17)

<223> Xaa = G or I

<221> VARIANT

<222> (19)...(22)

<223> Xaa = Any amino acid

<221> VARIANT

<222> (29)...(30)

<223> Xaa = Any amino acid

<221> VARIANT

<222> (80)...(80)

<223> Xaa = P or Q

<221> VARIANT

<222> (81)...(84)

<223> Xaa = Any amino acid

<400> 21

Xaa	Xaa	Xaa	Xaa	Gly	Xaa	Asn	Glu	Ile	Pro	Xaa	Arg	Xaa	Xaa	Xaa	Xaa	1	5	10	15
Xaa	Gly	Xaa	Xaa	Xaa	Xaa	Thr	Arg	Asp	Glu	Thr	Ala	Xaa	Xaa	Ala	Asp	20	25	30	
Ala	Val	Asp	Val	Ser	Leu	Val	Glu	Gly	Ser	Asn	Asp	Ile	Met	Gly	Ser	35	40	45	
Thr	Asn	Phe	Lys	Glu	Leu	Pro	Gly	Arg	Glu	Gly	Asn	Arg	Val	Asp	Ala	50	55	60	
Gly	Ser	Gln	Asn	Ala	His	Gln	Gly	Lys	Val	Glu	Phe	His	Tyr	Pro	Xaa	65	70	75	80
Ala	Pro	Ser	Lys	Glu	Lys	Arg	Lys	Glu	Gly	Ser	Xaa	Xaa	Xaa	Xaa	Xaa	85	90	95	
Xaa	Xaa	Xaa	Tyr	Asn	Glu	Ile	Pro	Lys	Xaa	Xaa	Lys	Gly	Xaa	Xaa	Xaa	100	105	110	
Lys	Xaa	Xaa	Xaa	Xaa	Ser	Asn	Arg	Asn	Gln	Ala	Thr	Leu	Asn	Glu	Lys	115	120	125	
Gln	Arg	Phe	Pro	Ser	Lys	Gly	Lys	Ser	Gln	Gly	Leu	Pro	Ile	Pro	Ser	130	135	140	

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Arg Gly Leu Asp Asn Glu Ile Lys Asn Glu Met Asp Ser Phe Asn Gly
 145 150 155 160
 Pro Ser His Glu Asn
 165

<210> 22
 <211> 13
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> 1
 <223> Xaa = Y or S

<221> VARIANT
 <222> 6
 <223> Xaa = E or G

<221> VARIANT
 <222> 8
 <223> Xaa = E or K

<221> VARIANT
 <222> (9)...(11)
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> 12
 <223> Xaa = G or I

<400> 22
 Xaa Asn Glu Ile Pro Xaa Arg Xaa Xaa Xaa Xaa Gly
 1 5 10

<210> 23
 <211> 11
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> 7, 8
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> 11
 <223> Xaa = S or G

<400> 23
 Tyr Asn Glu Ile Pro Lys Xaa Xaa Lys Gly Xaa
 1 5 10

<210> 24
 <211> 57
 <212> PRT
 <213> Homo sapien

<220>

<221> VARIANT

<222> 46

<223> Xaa = P or Q

<400> 24

Asp	Val	Ser	Leu	Val	Glu	Gly	Ser	Asn	Asp	Ile	Met	Gly	Ser	Thr	Asn
1				5				10					15		
Phe	Lys	Glu	Leu	Pro	Gly	Arg	Glu	Gly	Asn	Arg	Val	Asp	Ala	Gly	Ser
			20					25					30		
Gln	Asn	Ala	His	Gln	Gly	Lys	Val	Glu	Phe	His	Tyr	Pro	Xaa	Ala	Pro
		35					40					45			
Ser	Lys	Glu	Lys	Arg	Lys	Glu	Gly	Ser							
	50					55									